

Table III
Identification of Emerging Technologies
Source Category: Bakery Ovens

Pollutant: VOC

Description of Emerging Technology	Status	Source	Comments
<p>“Trickling biofilter” technology to remove ethanol emissions was pilot tested at a bakery in Columbus, Ohio. Microorganisms selected for their ability to convert ethanol to carbon dioxide and water are suspended in a column containing plastic strand mesh pellets. Water containing nutrients for the microorganisms trickles down from the top of the column, while air laden with ethanol from the bakery stack is fed in from the bottom of the column. Air flow is adjusted to maximize ethanol-converting microbial action, while minimizing condensation and resulting unsanitary microbial contamination in the oven stack. Early test results indicate 95-98% destruction efficiency.</p> <p>Capital costs are estimated at less than \$200,000, and annual operating and maintenance costs are estimated at \$10,000-20,000. In comparison, capital costs for catalytic oxidizers are estimated at \$250,000, and annual operating and maintenance costs are estimated at \$50,000.</p> <p>This is a joint study between the U.S. EPA and the American Bakers Association.</p>	<p>Final report expected in May 1998. Expect commercialization within 3-5 years.</p>	<p>Personal communication with Anne Giesecke, American Bakers Association, Washington, DC, (202) 789-0300.</p>	<p>Catalytic oxidizers contain heavy-metal catalyst and are not environmentally sound in food plants. There is also concern with additional fuel use and NO_x emissions associated with catalytic oxidizers. Catalytic oxidizers in bakery ovens currently achieve 90% destruction efficiency. Technology may be applicable for odor control in other food plants such as meat smoking, and onion, garlic, and pepper processing.</p>

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